CAPTCHA Activity

Answer the following questions based upon the Seeing AI: Making the Visual World More Accessible video.

1. What are 3 ways Andre is able to use the app to be able to see and understand his world?

Take pictures of places like a grocery store and have the seeing ai describe it to him, he can take pictures of money that will tell him how much each bill is worth, the seeing ai can also read notes written from his kids, or pictures others sent across the internet. It helps him feel involved with social media and helps him with his family.

1. What is the low tech that he uses? What is the high tech he uses?
   1. Low tech: His walking cane.
   2. High tech: his smart phone.
2. Which feature does he consider to be a game-changer?

Short text, an application where he can point his phone at places, and it tells him all the different places that he passes by.

1. What does the app allow him to be able to do to be able to more fully participate?

The ai has several features that can help describe images and letters, short text reads signs and says what they are. He says it is like “having someone who can see in your pocket”.

Answer the following questions in your own words based upon [uses of CAPTCHAs](http://www.captcha.net/).

1. What is the purpose of a CAPTCHA? Hint: Think of what the abbreviation spells out.

The purpose of CAPTCHA is to tell a human response apart from a computer. Captcha prevents computers from doing lots of things like running scripts or spamming comments, by having a test that a human can answer. This helps verify that it is indeed an actual user trying to make the requests.

1. CAPTCHAs are used for security purposes. List all 7. Then choose at least 2 of these to describe in a little more detail as to what kind of attack it protects against.

The seven purposes are:

1. Preventing comment spam in blogs.
2. Protecting website registration.
3. Protecting email addresses from scrapers.
4. Protect online polls.
5. Prevent dictionary attacks.
6. Protect from search engine bots.
7. Prevent worms and spam.

By using captcha to verify accurate results on a poll, it ensures that a person only votes once on the poll, and that a human voted. Otherwise, someone can set up a bot that will continuously vote until the poll is closed. The example provided showed how two universities bots voted over 20k votes, while other schools has only around 1k on average.

Using a captcha against website registration helps from bots from creating fake email addresses constantly. these automated scripts were creating thousands of emails every minute who could use those emails for another website, or trying to crash email servers from all the accounts being created at once.

1. There are 5 guidelines for CAPTCHAs. What are they? Briefly describe 2 of them.

Accessibility, image security, script security, security even after wide spread adoption, should I make my own captcha?

Accessibility- captchas must be accessible by everyone, just using image or words on a page can’t be accessible for visually impaired people. It must be able to give the option for a sound or audio.

Image security- pictures or words must be distorted enough to prevent a simple bot from breaking through it. The pictures also should be distorted before a user sees it. Minor or undistorted pictures are practically useless.

1. What makes CAPTCHAs a win-win situation?

Either a CAPTCHA is not broken and there is a way to differentiate humans from computers, or the captcha is broken and an AI problem is solved.

Answer the following questions in your own words based upon [Captcha if you can: how you’ve been training AI for years without realising it](https://www.techradar.com/news/captcha-if-you-can-how-youve-been-training-ai-for-years-without-realising-it).

1. How did the original CAPTCHA work using words? How can reCAPTCHA check its work?

Captcha would give two words, one that was already transcribed the other would not. This was sent to users who would enter the words and it helped transcribe books into googles digital database. Captcha can check the words by sending the same words to multiple users and compare them to how other people answered. Verifying that the word is correct to others.

1. What are 2 reasons Google has for wanting to train AI to recognize objects in images?

Training the ai to be able to identify images correctly and give better results due to correct identification is one of the reasons why google wants to train AI. Another reason is for the ai to be able to recognize street signs that could be later used to train self-driving cars, or for google maps to help give better directions.

1. What’s the danger of using CAPTCHAs to train machine learning algorithms?

There will be nothing that can stop machines from going around captchas.

Go to an embedded [Google’s reCAPTCHA on a webpage](https://patrickhlauke.github.io/recaptcha/).

1. Check the box to perform the reCAPTCHA. Click the “Get a new challenge” icon (looks like refresh button). Do this 3 times. What are the different objects it asks you to identify?

Crosswalks, mountains or hills, and bicycles.

1. Keep pushing the refresh button (approximately 10-15 times quickly) without choosing any squares. Then click on the headphones image (“Get an audio challenge”). You should get a “My computer or network may be sending automated queries?” message. What causes this to happen? Go to [reCAPTCHA FAQ page](https://developers.google.com/recaptcha/docs/faq).

It could be from an abused shared network, an unusual IP Address, or the website trying to be accessed is under heavy attack. Probably due to the spam that is occurring when you spam click the link cause it to think its an automated response.

1. Refresh the page. Choose the headphones image. Press the Play button and see if you can identify the word(s).

“More water without plastic”

1. Why is it important the reCAPTCHA allows for either visual or audio tests? Provide at least 2 reasons.

Someone who is visually impaired could need to listen to a clip instead of visually matching images or words for the CAPTCHA. Someone who can’t accurately distinguish what the captcha is saying in audio could read the title and pick out the pictures, hearing impaired? People may not be in a place where they can use audio to solve CAPTCHA using an audio clip, or lack of headphones. Someone could have troubles typing, and it would easier for them to click the pictures. Someone could not have a mouse and could use keys like tab to mark the audio, and type in the answer into the box.

(an example of this could be found under the accessibility options in windows).